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# Bubble-TV: Live Visual Feedback for Social TV Broadcast

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**Figure 1:** Integration of Bubble-TV as a background of the TV stage.

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## Abstract

Live visualizations connected to Twitter are an opportunity to engage television (TV) viewers by providing them with visual feedback, social awareness and the possibility to interact with others. In this paper we describe our experience in deploying Bubble-TV, an extension of Bubble-T [3], intended for live visualization of TV viewers' Tweets. It was used as a background for the french TV show: "Le grand Webzé", allowing its hosts to explore and comment the social activity that took place around the show. In addition, we found that Bubble-TV impacted the viewers' experience, since half of all the viewers who Tweeted actively used the system guidelines that were given to them. Yet as effective as Bubble-TV was, we believe more research and different applications are needed to identify best practices and develop general guidelines.

## Author Keywords

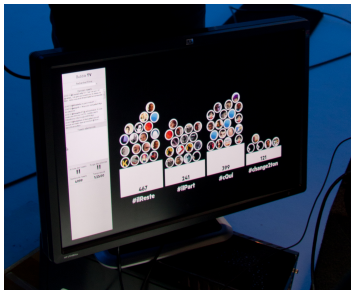
Social TV, Information Visualization, Backchannel, Live Tagging, Data Stream, Twitter, Poll

## ACM Classification Keywords

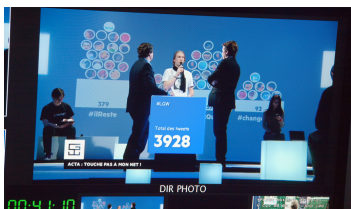
H.5.m [Information interfaces and presentation (e.g., HCI)]: Miscellaneous.



**Figure 2:** The stage with Bubble-TV as a background.



**Figure 3:** The community manager screen control.



**Figure 4:** The Tweet counter embedded in the stage furniture.

## Context

### *What is Bubble-TV?*

Bubble-TV is a dynamic visualization that encodes Tweets as small *bubbles* which continuously fall from the top of the screen and fill up bins of a bar chart. After a small amount of time, each bin shows the total number of Tweets (Figure 1), divided into 1) the latest bubbles (that stay visible for 30 seconds), and 2) an aggregation of older ones below (that is updated every time a bubble disappears).

This offers a double reading: latest Tweets are expressed by the density of bubbles, and the total count by the bar chart beneath. Thus one can easily visualize social networking activities. This visualization technique has already been used to monitor real time evolution of 2012 French presidential candidates' popularity on Twitter [3]; and is based on the metaphors introduced in our visual sedimentation toolkit [2].

### *For which live TV show?*

The live TV show in which Bubble-TV was deployed, was called "Le Grand Webzé". It was aired on "France 5" (National Public TV channel) one Friday per month at 11pm and lasted 1h30min. It was presented by two hosts and a community manager, and had an average of 115 060 viewers, with peaked at 708 000. The main topic was to promote emerging talents on the Web (YouTubers, bloggers, ..), which is why Bubble-T [3] was picked up. The edition in which Bubble-TV appeared aired on February, 24th 2012.

### *Our position*

Our work started when the Innovation services of the French national television network asked us to adapt Bubble-T for "Le Grand Webzé". This re-design forced us

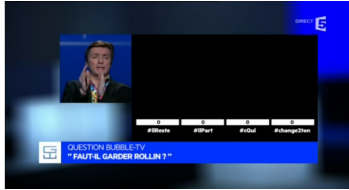
to consider new types of users, i.e., TV viewers, but also the people involved in the production of the show. As far as we know, such an experiment has never been discussed, and we found no guidelines to follow. We want to take the opportunity of the workshop to share our experience, discuss potentially similar ones, and eventually establish guidelines for Social TV scenarios using visualisations.

## Design for the TV Show

TV shows have a well established complex production chain. Many people are involved: scenarists, directors, producers, TV hosts, guests, and in our particular case, a community manager. The first preparation meeting we had with these people was held 45 days before the show. They were interested in using Twitter to engage users in an active process by including them in the TV show. Traditionally, this is done by inviting people to be physically present, or by getting them to phone or send SMS or Emails. More recently however, the use of Twitter has been emphasized to capture viewers' feelings and feedback. Yet this collected information has mostly been presented in aggregated forms, i.e., total number of Tweets, or one Tweet at a time. Bubble-TV shows both in a dynamic way. It also indicates provenance of every Tweet with individual avatar faces on each bubble. Furthermore, no specific client application (e.g. second screen to send Tweets) is needed, and the only visualization provided by Bubble-TV is broadcasted. Our design and deployment of Bubble-TV was decomposed into the following three steps:

### 1. Preparation of the TV Show (Weeks before).

We discussed with the scenarists and the directors when Bubble-TV would appear on screen, when the TV hosts and community manager would have to introduce it, what role the visualization would have, and what guidelines would be given to viewers.



**Figure 5:** Speaker present and explain how the visualization will work.



**Figure 6:** The community manager reporting Twitter activity.

2. **Before the TV Show (Hours before).** We set the system up on stage and in the video control room. We explained to the community manager how to interact with the visualization feature by showing her how to point at and display details of an individual Tweet.
3. **During the TV Show.** We gave the community manager, TV hosts, and directors autonomy. They followed the initial script we agreed upon, but had room to improvise.

#### *Specific interfaces dedicated to each actor*

A series of iterations were performed to make Bubble-TV compatible with the different roles of each actor of the TV show, i.e, the hosts', scenarists' and directors'. Stability was a prime issue since no crash, freeze or reboot was allowed. This design process resulted in the development of three different interfaces dedicated to the viewers and hosts, the community manager and the producers. These are:

- **The stage visualization** (Figure 2), which used the Bubble-TV visualization introduced earlier. It presented Twitter activity in real time.
- **The community manager interface** (Figure 3), which was similar to the stage visualization but fit for a computer screen, and augmented with interactive features used to monitor, read, select, and display Tweets. This interface also controlled the visualization on stage.
- **The counter of Tweets** (Figure 4), which allowed the viewers, hosts, and producers to know the exact volume of Tweets throughout the show.

## **Scenario for the TV broadcast**

Explaining Bubble-TV to a very diverse audience is not straightforward. The wording to describe it has to be short, easily understandable, regularly repeated and consistent throughout the show.

### *Focus on a scenario*

Instead of monitoring the whole Twitter activity, a specific scenario was decided upon: a real time poll system would be used during the TV show. This is quite common, but is usually done with phone calls or SMS, which are hard to visualize collectively and expensive.

At the beginning of the show, the speaker introduced Bubble-TV (Figure 5, duration 2min15), asked the poll question to the public ("Does the second host have to be fired?"), gave four possible answers (#yes, #no, #hehastochange, and #whoisthisguy), and quickly explained how to send tweets with hashtags and how to read Bubble-TV. During the show, the community manager made quantitative and qualitative reports (Figure 6, between 30 and 50 seconds longs). At the end of the show, the hosts and the community manager discussed the final results of the poll (they ended up keeping the second host).

### *Talking to the audience with Bubble-TV support*

During the broadcast, the hosts commented Bubble-TV as if it were a weather forecast, with the difference that they had to introduce what a Tweet was and its meaning in the context of the question being asked. They had to repeat both questions and instructions frequently as the show was quite long and people could join in at any time. The community manager reported several interesting Tweets and interacted them live.

### Interesting observations from the TV show

During the approximate 20 minutes (out of 1h30) Bubble-TV<sup>1</sup> was visible and in focus [Figure 1](#), a series of unexpected events occurred. For instance one of the two hosts voted on Twitter to fire the other ([Figure 6](#)); at one point the visualization suddenly refreshed while a host was pointing a specific bubble, making it disappear; and at another, one of the hosts made a connection between an avatar and a person in the audience.

### After the TV broadcast

During the show in which Bubble-TV was deployed, twice as many Tweets were sent compared to the previous one (4658 versus approximately 2000). 23% (1094) of these were sent using the answer hashtags accounting for 518 out of the 1268 active Twitter users. We believe that this high level of adoption (40% of different Twitter accounts) is linked to the poll scenario, but also to viewers' appeal to see their avatar on TV. Overall, we received positive feedback and congratulations from the producers, viewers and broadcaster. Sadly the show was cancelled after that, but Bubble-TV appeared in the France Television 2012 innovation teaser for programs, and is still under consideration for further use.

### Conclusion

Our experience with Bubble-TV indicate that social networking activity could be highly impacted by the experience provided by TV broadcasting. We believe that live social network interactions driven by a broadcaster will allow to achieve tasks such as live tagging. Indeed people seem motivated to tag their own tweets if their opinion is asked for [1]. The benefits of this include providing a realtime feedback, an accuracy that other

systems may not deliver, and quantitative and qualitative data that broadcasters could benefit from. For example, such data could be used for sentiment analysis, video annotation, or specific metadata collection for future applications. We believe visualizing this in real time will have an important role to play but will also require careful designs and well thought scenarios.

During the workshop we would like to discuss the following questions: (1) How can these live social TV systems be designed in order to achieve more complex tasks? (2) How can visualisation and scenario design improve users' incentive? (3) What is the best way to instruct a new user, even if he/she joins the show in progress?

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<sup>1</sup>A montage of interesting sequences is available here (in French): [http://www.youtube.com/watch?v=jn9ief50\\_gQ](http://www.youtube.com/watch?v=jn9ief50_gQ)